

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraphs including lines 3-6 and 11-12 on page 16 as follows:

A subscription in a system for multicasting news can include the topic field of a published message, for example, "weather", "politics", "sports", "TV", "movies", "theater", "literature", etc. A client can specify a subscription as a set of topic words. For example, referring to FIG. 1, a client c(116 104) only interested in messages about television or the weather can specify its subscription as {"TV", "weather"}. Another subscriber c(118 114) interested in television, movies, and sports can specify its subscription as {"TV", "movies", "sports"}. It may also be desirable to also allow a subscription specification of "ALL", the set of all possible topics.

The subscriptions of several clients can be aggregated into a single subscription that describes the union of all the messages that match the individual subscriptions. The aggregated subscription of c(116 104) and c(118 114) is simply the union of the sets that describe the individual subscriptions, {"TV", "weather", "movies", "sports"}. An aggregated subscription can be approximated by a subscription that matches a superset of the desired messages, the coarsest approximation being the subscription "ALL". Referring to FIG. 2, a client-server cellule, e.g., D4:E (208), advertises the aggregated subscriptions of all its clients to its neighbor cellule, e.g., E:D4 (206), so that a message processor(s) in a neighbor cellule will forward all messages that match any of the subscriptions of the clients to a server of those clients. Similarly, the aggregated subscriptions of the several cellules in a cell (or an approximation of the aggregation) is advertised to neighbor cellules in other cells.

Please amended the paragraph including line 18 on page 24 as follows:

When a message arrives at a machine N, its message distribution tag [(flag, to):

$(f_1, X_1:Y_1:N), (f_2, X_2:Y_2:N), \dots, (f_k, X_k:Y_k:N)]$ is processed in conjunction with the aforementioned cellule distribution table to produce a new potential to-list (LA). The method initializes LA to an empty list of cellules. For each (flag, to) entry $(f_k, X_k:Y_k:N)$ in the tag of the incoming message: use from flag f_k to determine whether the message came from an internal or an external neighbor of $X_k:Y_k:N$; find the corresponding distribution sublist of cellules for $X_k:Y_k:N$ in the cellule distribution table of N ; and append this sub-list to LA. The resulting list LA is a complete list of cellules to which the message should be distributed, assuming matching subscriptions. The message is matched against the subscriptions of all reachable foreign cellules of N , but only cellules which both match and are in the potential to-list (LA) go into the pruned matching results list (LB). For each cellule in list LB, ~~(use a routing function to)~~ choose a virtual machine within that cellule to which N has a network or intracellular connection. A routing function may be used to choose the virtual machine. The result is a list of destination virtual machines for the message (LC). Sort and split list LC into a set of lists $\{LD_1, LD_2, \dots\}$ so that all the virtual machines within each list LD_j are implemented by the same real machine. For each list $LD_j = (W_1:V_1:M_j, W_2:V_2:M_j, \dots, W_l:V_l:M_j)$: expand the list to form a message distribution tag $LT_j = [(from, to): (g_1, W_1:V_1:M_j), (g_2, W_2:V_2:M_j), \dots, (g_l, W_l:V_l:M_j)]$ where for each i flag g_i is set to a value "i" (internal) if machine N has a presence in cell W_i ; g_i is set to a value "x" (external) otherwise; and send the message to machine M_j along with message distribution tag LT_j . Alternatively, send the message (perhaps using a network multicast or broadcast facility) to all the real machines implied by the list LC, with a tag which is the concatenation of all the tags LT_j computed as described above. Upon receipt a real machine ignores virtual machines named in the tag that it does not implement.

Please amend the paragraph including line 3 on page 31 as follows:

According to the network shown in FIG. 9, the routing choice table of real machine N is:

Cellule	VM numbers
C:A	2, 3, 5
C:B	<u>0</u> , 6
X:C	1, 2
C:X	1, 4